



EM125015763US

1

SEQUENCE LISTING

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TANG, QUINN Q.
XU, JUN

<120> TARGETS FOR TUMOR GROWTH INHIBITION

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<140> 10/551,667

<141> 2006-07-18

<150> PCT/US04/010059

<151> 2004-04-01

<150> 60/458,948

<151> 2003-08-01

<150> 60/489,504

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<170> PatentIn Ver. 3.5

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<213> Homo sapiens

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<213> Homo sapiens

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ctcctggagc tctcagagcc ggcgcgggtg gagtcggggc agtccccgca gcctgggcag 1140
cagctgagca tcacagtggg catcaaccag gacattttac agcaagcctt agaaaacagt 1200
gggctgtctt caattccagc tgcagcacat cctaattgact cctgccatgc caagacctct 1260
gcaccacacg ctcaaaaacc agatgttttc agcgtttcaa atgagcagac ggacccccaca 1320
gacgcagagc aagaaaaaga acaggaaaag ccggagaaaac tggataaaaa aaaaaaaaaa 1380
agggccacat gtgctcgagc tgcaggtcgc ggccgctag 1419

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<210> 9

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 9
 aaccctgcc acaacggtgg t 21

<210> 10
 <211> 21
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 10
 aaccccgcc acaacggugg u 21

<210> 11
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 11
 aaccactgtg agacgaaatg t 21

<210> 12
 <211> 21
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 12
 aaccacugug agacgaaaug u 21

<210> 13
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 13
 aactgccccca gcgatctctg c 21

<210> 14
 <211> 21
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 14
 aacugcccca gcgaucucug c 21

<210> 15
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 15
 aacctaattc tcctgaggct g 21

<210> 16
 <211> 21
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 16
 aaccuaauuc uccugaggcu g 21

<210> 17
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 17
 aatgcggaga acactaatta t 21

<210> 18
 <211> 21
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 18
 aaugcggaga acacuaauua u 21

<210> 19
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 19
 aatgacaagc cacatcgatg t 21

<210> 20
 <211> 21
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 20
 aaugacaagc cacaucgaug u 21

<210> 21
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 21
 aagctggaca ttccctctgc g 21

<210> 22
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 22
 aagagcccag cttcctgcag c 21

<210> 23
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 23
 aactgttgag gagcccatgg a

21

<210> 24
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 24
 aatctgatga tgaagctgca g

21

<210> 25
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 25
 aagagcccag cttcctgcag c

21

<210> 26
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 26
 aagctggaca ttccctctgc g

21

<210> 27
 <211> 152
 <212> PRT
 <213> Homo sapiens

<400> 27

Ala Leu Arg Asn Trp Gln Val Tyr Arg Leu Val Thr Tyr Ile Phe Val
 1 5 10 15

Tyr Glu Asn Pro Ile Ser Leu Leu Cys Gly Ala Ile Ile Ile Trp Arg
 20 25 30

Phe Ala Gly Asn Phe Glu Arg Thr Val Gly Thr Val Arg His Cys Phe
 35 40 45

Phe Thr Val Ile Phe Ala Ile Phe Ser Ala Ile Ile Phe Leu Ser Phe
 50 55 60

Glu Ala Val Ser Ser Leu Ser Lys Leu Gly Glu Val Glu Asp Ala Arg
 65 70 75 80

Gly Phe Thr Pro Val Ala Phe Ala Met Leu Gly Val Thr Thr Val Arg
 85 90 95

Ser Arg Met Arg Arg Ala Leu Val Phe Gly Met Val Val Pro Ser Val
 100 105 110

Leu Val Pro Trp Leu Leu Leu Gly Ala Ser Trp Leu Ile Pro Gln Thr
 115 120 125

Ser Phe Leu Ser Asn Val Cys Gly Leu Ser Ile Gly Leu Ala Tyr Ala
 130 135 140

His Leu Leu Leu Phe His Arg Pro
 145 150

<210> 28

<211> 152

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 28

Leu Leu Gln Lys Arg Gln Leu Tyr Glu Ile Ile Thr Tyr Val Thr Leu
 1 5 10 15

His Leu Ser Met Leu His Ile Val Phe Asn Phe Val Ser Leu Leu Pro
 20 25 30

Ala Met Ser Gln Phe Glu Lys Lys Gln Gly Thr Leu Ala Cys Ile Leu
 35 40 45

Val Thr Val Ile Pro Tyr Thr Leu Phe Pro Gly Ile Met His Leu Ile
 50 55 60

Val Tyr His Phe Phe Leu Arg Lys Asp Tyr Val Ser Ile Ala Gly Leu
 65 70 75 80

Ser Gly Trp Ala Phe Ala Phe Ile Ser Ala Ser Cys Val His Ser Pro
 85 90 95

Gln Arg Leu Ile Ser Phe Phe Asn Leu Phe Ser Ile Pro Ala Tyr Cys
 100 105 110
 Phe Pro Ile Ile Tyr Leu Ile Met Thr Thr Ile Leu Val Pro Lys Ala
 115 120 125
 Ser Phe Ile Gly His Ala Ser Gly Ala Val Met Gly Tyr Cys Thr Pro
 130 135 140
 Phe Met Leu Gly Ser Ile Pro Leu
 145 150

<210> 29
 <211> 145
 <212> PRT
 <213> Schizosaccharomyces pombe

<400> 29
 Pro Arg Ser Leu Glu Gly Leu Arg Gly Ile Val Phe Ala Pro Phe Leu
 1 5 10 15
 His Ala Asp Phe Gly His Leu Ile Ala Asn Ser Val Pro Phe Val Val
 20 25 30
 Leu Ala Trp Leu Val Met Leu Gln Glu Val Ser Asp Phe Trp Ile Val
 35 40 45
 Thr Ile Ile Thr Met Val Val Gly Gly Leu Gly Val Trp Leu Ile Ala
 50 55 60
 Pro Pro Asn Thr Val Thr Val Gly Ala Ser Ile Leu Ile Phe Gly Tyr
 65 70 75 80
 Leu Gly Phe Leu Leu Phe Arg Gly Trp Phe Gln Lys Asn Leu Ala Ser
 85 90 95
 Ile Val Leu Ser Ile Val Val Leu Val Leu Tyr Gly Ser Ala Leu Trp
 100 105 110
 Gly Leu Leu Pro Gly Arg Ala Gly Val Ser Trp Gln Gly His Leu Phe
 115 120 125
 Gly Phe Ile Gly Gly Ala Ile Ala Ala Trp Leu Ile Ala Arg Glu Lys
 130 135 140
 His
 145

<210> 30
 <211> 145
 <212> PRT
 <213> Saccharomyces cerevisiae

<400> 30
 Ser Lys Ser Asn Ala Arg Pro Val Val Ala Ile Gly Asp Ser Asp Ile
 1 5 10 15

Tyr Ser Tyr Arg Leu Trp Ser Phe Phe Cys Gln Trp Ile Asn Thr Ile
 20 25 30
 Phe Cys Trp Ser Asn Arg Arg Arg Pro Leu Gly Leu Thr Pro Phe Leu
 35 40 45
 Leu Leu Tyr Val Leu Ser Gly Val Met Gly Asn Ala Phe Thr Phe Trp
 50 55 60
 Leu Thr Pro Glu Thr Val Ala Ala Gly Ala Ser Thr Ser Leu Phe Gly
 65 70 75 80
 Leu Phe Ala Ala Ile Val Val Leu Ser Phe Leu Gly Lys Asn Gln Ala
 85 90 95
 Leu Lys Asp Leu Gly Lys Ser Tyr Gln Thr Leu Ile Val Val Asn Leu
 100 105 110
 Leu Met Asn Leu Phe Met Pro Asn Val Ser Met Ala Gly His Ile Gly
 115 120 125
 Gly Val Val Gly Gly Ala Leu Leu Ser Ile Val Phe Pro Thr Lys Met
 130 135 140
 Arg
 145

<210> 31
 <211> 156
 <212> PRT
 <213> Homo sapiens

<400> 31
 Pro Glu Lys Arg Glu Glu Ala Trp Arg Phe Ile Ser Tyr Met Leu Val
 1 5 10 15
 His Ala Gly Val Gln His Ile Leu Gly Asn Leu Cys Met Gln Leu Val
 20 25 30
 Leu Gly Ile Pro Leu Glu Met Val His Lys Gly Leu Arg Val Gly Leu
 35 40 45
 Val Tyr Leu Ala Gly Val Ile Ala Gly Ser Leu Ala Ser Ser Ile Phe
 50 55 60
 Asp Pro Leu Arg Tyr Leu Val Gly Ala Ser Gly Gly Val Tyr Ala Leu
 65 70 75 80
 Met Gly Gly Tyr Phe Met Asn Val Leu Val Asn Phe Gln Glu Met Ile
 85 90 95
 Pro Ala Phe Gly Ile Phe Arg Leu Leu Ile Ile Ile Leu Ile Ile Val
 100 105 110
 Leu Asp Met Gly Phe Ala Leu Tyr Arg Arg Phe Phe Val Pro Glu Asp
 115 120 125

Gly Ser Pro Val Ser Phe Ala Ala His Ile Ala Gly Gly Phe Ala Gly
 130 135 140

Met Ser Ile Gly Tyr Thr Val Phe Ser Cys Phe Asp
 145 150 155

<210> 32
 <211> 145
 <212> PRT
 <213> Escherichia coli

<400> 32
 Pro Thr Leu Lys Phe Glu Phe Trp Arg Tyr Phe Thr His Ala Leu Met
 1 5 10 15

His Phe Ser Leu Met His Ile Leu Phe Asn Leu Leu Trp Trp Trp Tyr
 20 25 30

Leu Gly Gly Ala Val Glu Lys Arg Leu Gly Ser Gly Lys Leu Ile Val
 35 40 45

Ile Arg Ser Ile Ser Ala Leu Leu Ser Gly Tyr Val Gln Gln Lys Phe
 50 55 60

Ser Gly Pro Trp Phe Gly Gly Leu Ser Gly Val Val Tyr Ala Leu Met
 65 70 75 80

Gly Tyr Val Trp Leu Arg Gly Glu Arg Asp Pro Gln Ser Gly Ile Tyr
 85 90 95

Leu Gln Arg Gly Leu Ile Ile Phe Ala Leu Ile Trp Ile Val Ala Gly
 100 105 110

Trp Phe Asp Leu Phe Gly Met Ser Met Ala Asn Gly Ala His Ile Ala
 115 120 125

Gly Leu Ala Val Gly Leu Ala Met Ala Phe Val Asp Ser Leu Asn Ala
 130 135 140

Arg
 145

<210> 33
 <211> 157
 <212> PRT
 <213> Homo sapiens

<400> 33
 Ser Asn Pro Ala Ser Lys Val Leu Cys Ser Pro Met Leu Leu Ser Thr
 1 5 10 15

Phe Ser His Phe Ser Leu Phe His Met Ala Ala Asn Met Tyr Val Leu
 20 25 30

Trp	Ser	Phe	Ser	Ser	Ser	Ile	Val	Asn	Ile	Leu	Gly	Gln	Glu	Gln	Phe
		35					40				45				
Met	Ala	Val	Tyr	Leu	Ser	Ala	Gly	Val	Ile	Ser	Asn	Phe	Val	Ser	Tyr
		50					55				60				
Leu	Gly	Lys	Val	Ala	Thr	Gly	Arg	Tyr	Gly	Pro	Ser	Leu	Gly	Ala	Ser
65						70				75				80	
Gly	Ala	Ile	Met	Thr	Val	Leu	Ala	Ala	Val	Cys	Thr	Lys	Ile	Pro	Glu
		85							90				95		
Gly	Arg	Leu	Ala	Ile	Ile	Phe	Leu	Pro	Met	Phe	Thr	Phe	Thr	Ala	Gly
		100					105						110		
Asn	Ala	Leu	Lys	Ala	Ile	Ile	Ala	Met	Asp	Thr	Ala	Gly	Met	Ile	Leu
		115					120				125				
Gly	Trp	Lys	Phe	Phe	Asp	His	Ala	Ala	His	Leu	Gly	Gly	Ala	Leu	Phe
130						135				140					
Gly	Ile	Trp	Tyr	Val	Thr	Tyr	Gly	His	Glu	Leu	Ile	Trp			
145						150				155					

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<210> 34
<211> 142
<212> PRT
<213> Sulfolobus solfataricus
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<400> 34															
Tyr	Leu	Val	Ile	Lys	Gly	Tyr	Tyr	Ser	Glu	Leu	Phe	Thr	Ser	Ile	Phe
1				5					10					15	
Ile	Thr	Asn	Ser	Phe	Val	Asp	Phe	Ile	Phe	Asn	Phe	Ile	Ser	Leu	Tyr
			20					25					30		
Val	Ile	Tyr	Leu	Ile	Phe	Gly	Ser	Arg	Ala	Gly	Lys	His	Glu	Tyr	Gly
		35					40					45			
Ile	Phe	Ile	Leu	Ala	Gly	Ile	Leu	Gly	Asn	Leu	Leu	Thr	Val	Ile	Phe
	50					55					60				
Tyr	Ser	Pro	Phe	Thr	Leu	Ser	Ser	Gly	Ala	Ser	Gly	Gly	Ile	Phe	Gly
65					70					75					80
Leu	Leu	Ser	Tyr	Tyr	Thr	Phe	Tyr	Asp	Phe	Leu	Lys	Lys	Asp	Asn	Leu
				85					90					95	
Gly	Val	Tyr	Gly	Leu	Val	Phe	Leu	Val	Ser	Val	Phe	Gly	Val	Ser	Asp
			100					105					110		
Leu	Ile	Phe	Pro	Asn	Val	Asn	Val	Val	Ala	His	Ile	Gly	Gly	Ile	Leu
		115					120					125			
Gly	Gly	Ile	Met	Tyr	Ala	Val	Val	Tyr	Tyr	Leu	Ile	Arg	Ser		
	130					135					140				

<210> 35
 <211> 156
 <212> PRT
 <213> Arabidopsis thaliana

<400> 35
 Ile Phe Lys His Lys Asp Leu Lys Arg Leu Phe Leu Ser Ala Phe Tyr
 1 5 10 15
 His Val Asn Glu Pro His Leu Val Tyr Asn Met Met Ser Leu Leu Trp
 20 25 30
 Lys Gly Ile Lys Leu Glu Thr Ser Met Gly Ser Ser Glu Phe Ala Ser
 35 40 45
 Met Val Phe Thr Leu Ile Gly Met Ser Gln Gly Val Thr Leu Leu Leu
 50 55 60
 Ala Lys Ser Leu Leu Leu Leu Phe Asp Tyr Asp Arg Ala Tyr Tyr Asn
 65 70 75 80
 Glu Tyr Ala Val Gly Phe Ser Gly Val Leu Phe Ala Met Lys Val Val
 85 90 95
 Leu Asn Ser Gln Ala Glu Asp Tyr Ser Ser Val Tyr Gly Ile Leu Val
 100 105 110
 Pro Thr Lys Tyr Ala Ala Trp Ala Glu Leu Ile Leu Val Gln Met Phe
 115 120 125
 Val Pro Asn Ala Ser Phe Leu Gly His Leu Gly Gly Ile Leu Ala Gly
 130 135 140
 Ile Ile Tyr Leu Lys Leu Lys Gly Ser Tyr Ser Gly
 145 150 155

<210> 36
 <211> 10
 <212> DNA
 <213> Homo sapiens

<400> 36
 tggccaataa

10

<210> 37
 <211> 854
 <212> PRT
 <213> Homo sapiens

<400> 37
 Met Ser Glu Ala Arg Arg Asp Ser Thr Ser Ser Leu Gln Arg Lys Lys
 1 5 10 15
 Pro Pro Trp Leu Lys Leu Asp Ile Pro Ser Ala Val Pro Leu Thr Ala
 20 25 30

Glu 35	Glu 50	Pro 35	Ser 35	Phe 35	Leu 35	Gln 40	Pro 40	Leu 40	Arg 40	Arg 40	Gln 45	Ala 45	Phe 45	Leu 45	Arg 45
Ser 55	Val 50	Ser 50	Met 50	Pro 50	Ala 55	Glu 55	Thr 55	Ala 55	His 55	Ile 60	Ser 60	Ser 60	Pro 60	His 60	His 60
Glu 65	Leu 65	Arg 65	Arg 65	Pro 65	Val 70	Leu 70	Gln 70	Arg 70	Gln 75	Thr 75	Ser 75	Ile 75	Thr 75	Gln 80	Thr 80
Ile 85	Arg 85	Arg 85	Gly 85	Thr 85	Ala 85	Asp 85	Trp 85	Phe 90	Gly 90	Val 90	Ser 90	Lys 95	Asp 95	Ser 95	Asp 95
Ser 100	Thr 100	Gln 100	Lys 100	Trp 100	Gln 100	Arg 100	Lys 105	Ser 105	Ile 105	Arg 105	His 110	Cys 110	Ser 110	Gln 110	Arg 110
Tyr 115	Gly 115	Lys 115	Leu 115	Lys 115	Pro 115	Gln 120	Val 120	Leu 120	Arg 120	Glu 125	Leu 125	Asp 125	Leu 125	Pro 125	Ser 125
Gln 130	Asp 130	Asn 130	Val 130	Ser 130	Leu 135	Thr 135	Ser 135	Thr 135	Glu 140	Thr 140	Pro 140	Pro 140	Pro 140	Leu 140	Tyr 140
Val 145	Gly 145	Pro 145	Cys 145	Gln 145	Leu 150	Gly 150	Met 150	Gln 155	Lys 155	Ile 155	Ile 155	Asp 155	Pro 155	Leu 160	Ala 160
Arg 165	Gly 165	Arg 165	Ala 165	Phe 165	Arg 165	Val 165	Ala 170	Asp 170	Asp 170	Thr 170	Ala 175	Glu 175	Gly 175	Leu 175	Ser 175
Ala 180	Pro 180	His 180	Thr 180	Pro 180	Val 180	Thr 185	Pro 185	Gly 185	Ala 185	Ala 185	Ser 190	Leu 190	Cys 190	Ser 190	Phe 190
Ser 195	Ser 195	Ser 195	Arg 195	Ser 195	Gly 195	Phe 200	His 200	Arg 200	Leu 205	Pro 205	Arg 205	Arg 205	Arg 205	Lys 205	Arg 205
Glu 210	Ser 210	Val 210	Ala 210	Lys 210	Met 215	Ser 215	Phe 215	Arg 215	Ala 220	Ala 220	Ala 220	Ala 220	Leu 220	Met 220	Lys 220
Gly 225	Arg 225	Ser 225	Val 225	Arg 230	Asp 230	Gly 230	Thr 230	Phe 235	Arg 235	Arg 235	Ala 235	Arg 235	Arg 235	Ser 240	Phe 240
Thr 245	Pro 245	Ala 245	Ser 245	Phe 245	Leu 245	Glu 245	Glu 245	Asp 250	Thr 250	Thr 250	Asp 250	Phe 250	Pro 255	Asp 255	Glu 255
Leu 260	Asp 260	Thr 260	Ser 260	Phe 260	Phe 260	Ala 265	Arg 265	Glu 265	Gly 265	Ile 265	Leu 270	His 270	Glu 270	Glu 270	Leu 270
Ser 275	Thr 275	Tyr 275	Pro 275	Asp 275	Glu 275	Val 280	Phe 280	Glu 280	Ser 280	Pro 285	Ser 285	Glu 285	Ala 285	Ala 285	Leu 285
Lys 290	Asp 290	Trp 290	Glu 290	Lys 290	Ala 295	Pro 295	Glu 295	Gln 295	Ala 300	Asp 300	Leu 300	Thr 300	Gly 300	Gly 300	Ala 300
Leu 305	Asp 305	Arg 305	Ser 305	Glu 310	Leu 310	Glu 310	Arg 310	Ser 315	His 315	Leu 315	Met 315	Leu 315	Pro 315	Leu 320	Glu 320
Arg 325	Gly 325	Trp 325	Arg 325	Lys 325	Gln 325	Lys 330	Glu 330	Gly 330	Ala 330	Ala 330	Ala 335	Pro 335	Gln 335	Pro 335	Lys 335

Val	Arg	Leu	Arg	Gln	Glu	Val	Val	Ser	Thr	Ala	Gly	Pro	Arg	Arg	Gly	340	345	350	
Gln	Arg	Ile	Ala	Val	Pro	Val	Arg	Lys	Leu	Phe	Ala	Arg	Glu	Lys	Arg	355	360	365	
Pro	Tyr	Gly	Leu	Gly	Met	Val	Gly	Arg	Leu	Thr	Asn	Arg	Thr	Tyr	Arg	370	375	380	
Lys	Arg	Ile	Asp	Ser	Phe	Val	Lys	Arg	Gln	Ile	Glu	Asp	Met	Asp	Asp	385	390	395	400
His	Arg	Pro	Phe	Phe	Thr	Tyr	Trp	Leu	Thr	Phe	Val	His	Ser	Leu	Val	405	410	415	
Thr	Ile	Leu	Ala	Val	Cys	Ile	Tyr	Gly	Ile	Ala	Pro	Val	Gly	Phe	Ser	420	425	430	
Gln	His	Glu	Thr	Val	Asp	Ser	Val	Leu	Arg	Asn	Arg	Gly	Val	Tyr	Glu	435	440	445	
Asn	Val	Lys	Tyr	Val	Gln	Gln	Glu	Asn	Phe	Trp	Ile	Gly	Pro	Ser	Ser	450	455	460	
Glu	Ala	Leu	Ile	His	Leu	Gly	Ala	Lys	Phe	Ser	Pro	Cys	Met	Arg	Gln	465	470	475	480
Asp	Pro	Gln	Val	His	Ser	Phe	Ile	Arg	Ser	Ala	Arg	Glu	Arg	Glu	Lys	485	490	495	
His	Ser	Ala	Cys	Cys	Val	Arg	Asn	Asp	Arg	Ser	Gly	Cys	Val	Gln	Thr	500	505	510	
Ser	Glu	Glu	Glu	Cys	Ser	Ser	Thr	Leu	Ala	Val	Trp	Val	Lys	Trp	Pro	515	520	525	
Ile	His	Pro	Ser	Ala	Pro	Glu	Leu	Ala	Gly	His	Lys	Arg	Gln	Phe	Gly	530	535	540	
Ser	Val	Cys	His	Gln	Asp	Pro	Arg	Val	Cys	Asp	Glu	Pro	Ser	Ser	Glu	545	550	555	560
Asp	Pro	His	Glu	Trp	Pro	Glu	Asp	Ile	Thr	Lys	Trp	Pro	Ile	Cys	Thr	565	570	575	
Lys	Asn	Ser	Ala	Gly	Asn	His	Thr	Asn	His	Pro	His	Met	Asp	Cys	Val	580	585	590	
Ile	Thr	Gly	Arg	Pro	Cys	Cys	Ile	Gly	Thr	Lys	Gly	Arg	Cys	Glu	Ile	595	600	605	
Thr	Ser	Arg	Glu	Tyr	Cys	Asp	Phe	Met	Arg	Gly	Tyr	Phe	His	Glu	Glu	610	615	620	
Ala	Thr	Leu	Cys	Ser	Gln	Val	His	Cys	Met	Asp	Asp	Val	Cys	Gly	Leu	625	630	635	640

Leu Pro Phe Leu Asn Pro Glu Val Pro Asp Gln Phe Tyr Arg Leu Trp
 645 650 655
 Leu Ser Leu Phe Leu His Ala Gly Ile Leu His Cys Leu Val Ser Ile
 660 665 670
 Cys Phe Gln Met Thr Val Leu Arg Asp Leu Glu Lys Leu Ala Gly Trp
 675 680 685
 His Arg Ile Ala Ile Ile Tyr Leu Leu Ser Gly Val Thr Gly Asn Leu
 690 695 700
 Ala Ser Ala Ile Phe Leu Pro Tyr Arg Ala Glu Val Gly Pro Ala Gly
 705 710 715 720
 Ser Gln Phe Gly Ile Leu Ala Cys Leu Phe Val Glu Leu Phe Gln Ser
 725 730 735
 Trp Gln Ile Leu Ala Arg Pro Trp Arg Ala Phe Phe Lys Leu Leu Ala
 740 745 750
 Val Val Leu Phe Leu Phe Thr Phe Gly Leu Leu Pro Trp Ile Asp Asn
 755 760 765
 Phe Ala His Ile Ser Gly Phe Ile Ser Gly Leu Phe Leu Ser Phe Ala
 770 775 780
 Phe Leu Pro Tyr Ile Ser Phe Gly Lys Phe Asp Leu Tyr Arg Lys Arg
 785 790 795 800
 Cys Gln Ile Ile Ile Phe Gln Val Val Phe Leu Gly Leu Leu Ala Gly
 805 810 815
 Leu Val Val Leu Phe Tyr Val Tyr Pro Val Arg Cys Glu Trp Cys Glu
 820 825 830
 Phe Leu Thr Cys Ile Pro Phe Thr Asp Lys Phe Cys Glu Lys Tyr Glu
 835 840 845
 Leu Asp Ala Gln Leu His
 850

<210> 38
 <211> 292
 <212> PRT
 <213> Homo sapiens

<400> 38
 Met Asn Leu Asn Met Gly Arg Glu Met Lys Glu Glu Leu Glu Glu Glu
 1 5 10 15
 Glu Lys Met Arg Glu Asp Gly Gly Gly Lys Asp Arg Ala Lys Ser Lys
 20 25 30
 Lys Val His Arg Ile Val Ser Lys Trp Met Leu Pro Glu Lys Ser Arg
 35 40 45

[illegible]

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<210> 39
<211> 619
<212> PRT
<213> Homo sapiens
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<400> 39
Met Ser Val Ala His Met Ser Leu Gln Ala Ala Ala Ala Leu Leu Lys
  1             5             10             15
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Gly	Arg	Ser	Val	Leu	Asp	Ala	Thr	Gly	Gln	Arg	Cys	Arg	Val	Val	Lys	20	25	30
Arg	Ser	Phe	Ala	Phe	Pro	Ser	Phe	Leu	Glu	Glu	Asp	Val	Val	Asp	Gly	35	40	45
Ala	Asp	Thr	Phe	Asp	Ser	Ser	Phe	Phe	Ser	Lys	Glu	Glu	Met	Ser	Ser	50	55	60
Met	Pro	Asp	Asp	Val	Phe	Glu	Ser	Pro	Pro	Leu	Ser	Ala	Ser	Tyr	Phe	65	70	75
Arg	Gly	Ile	Pro	His	Ser	Ala	Ser	Pro	Val	Ser	Pro	Asp	Gly	Val	Gln	85	90	95
Ile	Pro	Leu	Lys	Glu	Tyr	Gly	Arg	Ala	Pro	Val	Pro	Gly	Pro	Arg	Arg	100	105	110
Gly	Lys	Arg	Ile	Ala	Ser	Lys	Val	Lys	His	Phe	Ala	Phe	Asp	Arg	Lys	115	120	125
Lys	Arg	His	Tyr	Gly	Leu	Gly	Val	Val	Gly	Asn	Trp	Leu	Asn	Arg	Ser	130	135	140
Tyr	Arg	Arg	Ser	Ile	Ser	Ser	Thr	Val	Gln	Arg	Gln	Leu	Glu	Ser	Phe	145	150	155
Asp	Ser	His	Arg	Pro	Tyr	Phe	Thr	Tyr	Trp	Leu	Thr	Phe	Val	His	Val	165	170	175
Ile	Ile	Thr	Leu	Leu	Val	Ile	Cys	Thr	Tyr	Gly	Ile	Ala	Pro	Val	Gly	180	185	190
Phe	Ala	Gln	His	Val	Thr	Thr	Gln	Leu	Val	Leu	Arg	Asn	Lys	Gly	Val	195	200	205
Tyr	Glu	Ser	Val	Lys	Tyr	Ile	Gln	Gln	Glu	Asn	Phe	Trp	Val	Gly	Pro	210	215	220
Ser	Ser	Ile	Asp	Leu	Ile	His	Leu	Gly	Ala	Lys	Phe	Ser	Pro	Cys	Ile	225	230	235
Arg	Lys	Asp	Gly	Gln	Ile	Glu	Gln	Leu	Val	Leu	Arg	Glu	Arg	Asp	Leu	245	250	255
Glu	Arg	Asp	Ser	Gly	Cys	Cys	Val	Gln	Asn	Asp	His	Ser	Gly	Cys	Ile	260	265	270
Gln	Thr	Gln	Arg	Lys	Asp	Cys	Ser	Glu	Thr	Leu	Ala	Thr	Phe	Val	Lys	275	280	285
Trp	Gln	Asp	Asp	Thr	Gly	Pro	Pro	Met	Asp	Lys	Ser	Asp	Leu	Gly	Gln	290	295	300
Lys	Arg	Thr	Ser	Gly	Ala	Val	Cys	His	Gln	Asp	Pro	Arg	Thr	Cys	Glu	305	310	315

<210> 40
 <211> 404
 <212> PRT
 <213> Homo sapiens

<400> 40
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 Ala Glu Arg Ile Glu Glu Leu Glu Pro Glu Ala Glu Glu Arg Leu Pro
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 Ala Ala Pro Glu Asp His Trp Lys Val Leu Phe Asp Gln Phe Asp Pro
 35 40 45
 Gly Asn Thr Gly Tyr Ile Ser Thr Gly Lys Phe Arg Ser Leu Leu Glu
 50 55 60
 Ser His Ser Ser Lys Leu Asp Pro His Lys Arg Glu Val Leu Leu Ala
 65 70 75 80
 Leu Ala Asp Ser His Ala Asp Gly Gln Ile Gly Tyr Gln Asp Phe Val
 85 90 95
 Ser Leu Met Ser Asn Lys Arg Ser Asn Ser Phe Arg Gln Ala Ile Leu
 100 105 110
 Gln Gly Asn Arg Arg Leu Ser Ser Lys Ala Leu Leu Glu Glu Lys Gly
 115 120 125
 Leu Ser Leu Ser Gln Arg Leu Ile Arg His Val Ala Tyr Glu Thr Leu
 130 135 140
 Pro Arg Glu Ile Asp Arg Lys Trp Tyr Tyr Asp Ser Tyr Thr Cys Cys
 145 150 155 160
 Pro Pro Pro Trp Phe Met Ile Thr Val Thr Leu Leu Glu Val Ala Phe
 165 170 175
 Phe Leu Tyr Asn Gly Val Ser Leu Gly Gln Phe Val Leu Gln Val Thr
 180 185 190
 His Pro Arg Tyr Leu Lys Asn Ser Leu Val Tyr His Pro Gln Leu Arg
 195 200 205
 Ala Gln Val Trp Arg Tyr Leu Thr Tyr Ile Phe Met His Ala Gly Ile
 210 215 220
 Glu His Leu Gly Leu Asn Val Val Leu Gln Leu Leu Val Gly Val Pro
 225 230 235 240
 Leu Glu Met Val His Gly Ala Thr Arg Ile Gly Leu Val Tyr Val Ala
 245 250 255
 Gly Val Val Ala Gly Ser Leu Ala Val Ser Val Ala Asp Met Thr Ala
 260 265 270

Pro Val Val Gly Ser Ser Gly Gly Val Tyr Ala Leu Val Ser Ala His
 275 280 285
 Leu Ala Asn Ile Val Met Asn Trp Ser Gly Met Lys Cys Gln Phe Lys
 290 295 300
 Leu Leu Arg Met Ala Val Ala Leu Ile Cys Met Ser Met Glu Phe Gly
 305 310 315 320
 Arg Ala Val Trp Leu Arg Phe His Pro Ser Ala Tyr Pro Pro Cys Pro
 325 330 335
 His Pro Ser Phe Val Ala His Leu Gly Gly Val Ala Val Gly Ile Thr
 340 345 350
 Leu Gly Val Val Val Leu Arg Asn Tyr Glu Gln Arg Leu Gln Asp Gln
 355 360 365
 Ser Leu Trp Trp Ile Phe Val Ala Met Tyr Thr Val Phe Val Leu Phe
 370 375 380
 Ala Val Phe Trp Asn Ile Phe Ala Tyr Thr Leu Leu Asp Leu Lys Leu
 385 390 395 400
 Pro Pro Pro Pro

<210> 41
 <211> 379
 <212> PRT
 <213> Homo sapiens

<400> 41
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 35 40 45
 Gln Lys Cys Gly Phe Arg Lys Ala Pro Arg Lys Val Glu Pro Arg Arg
 50 55 60
 Ser Asp Pro Gly Thr Ser Gly Glu Ala Tyr Lys Arg Ser Ala Leu Ile
 65 70 75 80
 Pro Pro Val Glu Glu Thr Val Phe Tyr Pro Ser Pro Tyr Pro Ile Arg
 85 90 95
 Ser Leu Ile Lys Pro Leu Phe Phe Thr Val Gly Phe Thr Gly Cys Ala
 100 105 110
 Phe Gly Ser Ala Ala Ile Trp Gln Tyr Glu Ser Leu Lys Ser Arg Val
 115 120 125

Gln Ser Tyr Phe Asp Gly Ile Lys Ala Asp Trp Leu Asp Ser Ile Arg
 130 135 140
 Pro Gln Lys Glu Gly Asp Phe Arg Lys Glu Ile Asn Lys Trp Trp Asn
 145 150 155 160
 Asn Leu Ser Asp Gly Gln Arg Thr Val Thr Gly Ile Ile Ala Ala Asn
 165 170 175
 Val Leu Val Phe Cys Leu Trp Arg Val Pro Ser Leu Gln Arg Thr Met
 180 185 190
 Ile Arg Tyr Phe Thr Ser Asn Pro Ala Ser Lys Val Leu Cys Ser Pro
 195 200 205
 Met Leu Leu Ser Thr Phe Ser His Phe Ser Leu Phe His Met Ala Ala
 210 215 220
 Asn Met Tyr Val Leu Trp Ser Phe Ser Ser Ser Ile Val Asn Ile Leu
 225 230 235 240
 Gly Gln Glu Gln Phe Met Ala Val Tyr Leu Ser Ala Gly Val Ile Ser
 245 250 255
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 260 265 270
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 275 280 285
 Thr Lys Ile Pro Glu Gly Arg Leu Ala Ile Ile Phe Leu Pro Met Phe
 290 295 300
 Thr Phe Thr Ala Gly Asn Ala Leu Lys Ala Ile Ile Ala Met Asp Thr
 305 310 315 320
 Ala Gly Met Ile Leu Gly Trp Lys Phe Phe Asp His Ala Ala His Leu
 325 330 335
 Gly Gly Ala Leu Phe Gly Ile Trp Tyr Val Thr Tyr Gly His Glu Leu
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 355 360 365
 Thr Asn Gly Pro Lys Lys Gly Gly Gly Ser Lys
 370 375

<210> 42
 <211> 315
 <212> PRT
 <213> Homo sapiens

<400> 42
 Met Gln Arg Arg Ser Arg Gly Ile Asn Thr Gly Leu Ile Leu Leu Leu
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Ala	Thr	Leu 35	Ala	Leu	Asn	Ile	Trp 40	Phe	Phe	Leu	Asn	Pro 45	Gln	Lys	Pro
Leu	Tyr 50	Ser	Ser	Cys	Leu	Ser 55	Val	Glu	Lys	Cys	Tyr 60	Gln	Gln	Lys	Asp
Trp 65	Gln	Arg	Leu	Leu	Leu 70	Ser	Pro	Leu	His	His 75	Ala	Asp	Asp	Trp	His 80
Leu	Tyr	Phe	Asn	Met 85	Ala	Ser	Met	Leu	Trp 90	Lys	Gly	Ile	Asn	Leu 95	Glu
Arg	Arg	Leu	Gly 100	Ser	Arg	Trp	Phe	Ala 105	Tyr	Val	Ile	Thr	Ala 110	Phe	Ser
Val	Leu	Thr 115	Gly	Val	Val	Tyr	Leu 120	Leu	Leu	Gln	Phe	Ala 125	Val	Ala	Glu
Phe	Met 130	Asp	Glu	Pro	Asp	Phe 135	Lys	Arg	Ser	Cys	Ala 140	Val	Gly	Phe	Ser
Gly 145	Val	Leu	Phe	Ala	Leu 150	Lys	Val	Leu	Asn 155	Asn	His	Tyr	Cys	Pro	Gly 160
Gly	Phe	Val	Asn	Ile 165	Leu	Gly	Phe	Pro	Val 170	Pro	Asn	Arg	Phe	Ala 175	Cys
Trp	Val	Glu	Leu 180	Val	Ala	Ile	His	Leu 185	Phe	Ser	Pro	Gly	Thr 190	Ser	Phe
Ala	Gly	His 195	Leu	Ala	Gly	Ile	Leu 200	Val	Gly	Leu	Met	Tyr 205	Thr	Gln	Gly
Pro	Leu 210	Lys	Lys	Ile	Met	Glu 215	Ala	Cys	Ala	Gly	Gly 220	Phe	Ser	Ser	Ser
Val 225	Gly	Tyr	Pro	Gly	Arg 230	Gln	Tyr	Tyr	Phe	Asn 235	Ser	Ser	Gly	Ser	Ser 240
Gly	Tyr	Gln	Asp	Tyr 245	Tyr	Pro	His	Gly	Arg 250	Pro	Asp	His	Tyr	Glu 255	Glu
Ala	Pro	Arg	Asn 260	Tyr	Asp	Thr	Tyr	Thr 265	Ala	Gly	Leu	Ser	Glu 270	Glu	Glu
Gln	Leu	Glu 275	Arg	Ala	Leu	Gln	Ala 280	Ser	Leu	Trp	Asp	Arg 285	Gly	Asn	Thr
Arg	Asn 290	Ser	Pro	Pro	Pro	Tyr 295	Gly	Phe	His	Leu	Ser 300	Pro	Glu	Glu	Met
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<210> 43
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 43
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1 5

<210> 44
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 44
Gly Met Gln Lys Ile Ile Asp Pro Leu
1 5

<210> 45
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 45
Lys Met Ser Phe Arg Ala Ala Ala Ala
1 5

<210> 46
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 46
Leu Thr Ala Glu Glu Pro Ser Phe Leu
1 5

<210> 47
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 47
Ser Gln His Glu Thr Val Asp Ser Val
1 5

<210> 48
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 48
Gly Val Tyr Glu Asn Val Lys Tyr Val
1 5

<210> 49
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
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peptide

<400> 49
Tyr Val Gln Gln Glu Asn Phe Trp Ile
1 5

<210> 50
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 50
Leu Leu Pro Phe Leu Asn Pro Glu Val
1 5

<210> 51
 <211> 30
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 51
 Arg Gly Arg Ala Phe Arg Val Ala Asp Asp Thr Ala Glu Gly Leu Ser
 1 5 10 15
 Ala Pro His Thr Pro Val Thr Pro Gly Ala Ala Ser Leu Cys
 20 25 30

<210> 52
 <211> 30
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 52
 Val Lys Tyr Val Gln Gln Glu Asn Phe Trp Ile Gly Pro Ser Ser Glu
 1 5 10 15
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 20 25 30

<210> 53
 <211> 30
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 53
 Pro Val Arg Cys Glu Trp Cys Glu Phe Leu Thr Cys Ile Pro Phe Thr
 1 5 10 15
 Asp Lys Phe Cys Glu Lys Tyr Glu Leu Asp Ala Gln Leu His
 20 25 30

<210> 54
 <211> 28
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 54

caggaattcc atgagtgagg cccgcagg

28

<210> 55

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 55

ccctgggatc ctggtggcag acagag

26

<210> 56

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 56

ccggcgtcga ctcagtggag ctgagcgtc

29

<210> 57

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

<400> 57

caccaggatc ccagggtgtg tgatga

26

<210> 58

<211> 6559

<212> DNA

<213> Homo sapiens

<400> 58

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 gtcattagtt catagcccat atatggagtt ccgcggttaca taacttacgg taaatggccc 240
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<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

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29

<210> 60
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<213> Homo sapiens

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<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic primer

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<210> 64

<211> 6090

<212> DNA

<213> Homo sapiens

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<212> DNA

<213> Artificial Sequence

<220>

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<210> 66

<211> 6185

<212> DNA

<213> Homo sapiens

<400> 66

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<210> 71

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21

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<210> 77

<211> 9

<212> PRT

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<223> Description of Artificial Sequence: Synthetic peptide

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Val Leu Gly Leu Cys Cys Val Leu Leu
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<210> 78

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic peptide

<400> 78

Leu Leu His Val Thr Asp Thr Gly Val
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<211> 9

<212> PRT

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Ser Glu Leu Ile Gly Gln Phe Gly Val
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<212> PRT

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<223> Description of Artificial Sequence: Synthetic peptide

<400> 80

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Lys	Ser	Arg	Glu	Gly	Ser	Arg	Thr	Asp	Asp	Glu	Val	Val	Gln
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Ser	Ala	Phe	Leu	Val	Ala	Asp	Lys	Val	Ile	Val	Thr	Ser	Lys	His	Asn
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Asn	Asp	Thr	Gln	His	Ile	Trp	Glu	Ser	Asp	Ser	Asn	Glu	Phe
			20					25					30

<210> 82

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<212> PRT

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<223> Description of Artificial Sequence: Synthetic peptide

<400> 82

Ser	Glu	Lys	Thr	Lys	Glu	Ser	Arg	Glu	Ala	Val	Glu	Lys	Glu	Phe	Glu
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Pro	Leu	Leu	Asn	Trp	Met	Lys	Asp	Lys	Ala	Leu	Lys	Asp	Lys
			20					25					30

<210> 83

<211> 9

<212> PRT

<213> Artificial Sequence

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<400> 83

Met	Met	Pro	Lys	Tyr	Leu	Asn	Phe	Val
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<210> 84
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<400> 84
Lys Leu Tyr Val Arg Arg Val Phe Ile
1 5

<210> 85
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<220>
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<400> 85
Arg Leu Leu Lys Lys Gly Tyr Glu Val
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<210> 86
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<400> 86
Phe Leu Val Ala Asp Lys Val Ile Val
1 5

<210> 87
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<400> 87
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<400> 104
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 peptide motif

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 Gly Asp Ser Gly Gly
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 peptide

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Tyr Gly Ile Ala Pro Val Gly
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 peptide

<400> 107
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Ser Ile Cys Phe Gln Met Thr
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Arg Ala Glu Val Gly Pro Ala
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Phe Gly Leu Leu Pro Trp Ile
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Tyr Ile Ser Phe Gly Lys
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<210> 111

<211> 23

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peptide

<400> 111

Gln	Ile	Ile	Ile	Phe	Gln	Val	Val	Phe	Leu	Gly	Leu	Leu	Ala	Gly	Leu
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Val	Val	Leu	Phe	Tyr	Val	Tyr
			20			